

IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS

J-BHI Special Issue on “Fuzzy Deep Learning for Big Data Management in Healthcare”

Fuzzy deep learning (FDL) has emerged as a powerful tool due to its ability to manage Big Data in Healthcare. The blending of fuzzy logic principles, which accommodate uncertainty, imprecision, and inherent ambiguity in medical data, and deep learning, the approach used to extract and analyze hidden patterns and insights of Big Data in Healthcare, addresses the inherent challenges for extensive and complex Healthcare datasets. This synergy enables more accurate diagnosis predictions, optimized information processing, and efficient decision-making, enhancing healthcare Big Data management's efficiency and efficacy, helping speed up patient recovery, and advancing the overall quality of the healthcare system. Despite its many advantages, implementing FDL in Big Data management in Healthcare encompasses several challenges. Interpreting the reasoning of FDL models is one of the paramount concerns as the architecture of such models is very complex, producing non-availability of understandable path leading to poor acceptability in the medical community. Training models based on FDL also need high computing power and resources, another pivotal concern. Furthermore, the scarcity of labeled datasets is another concern, which adds noise during the model's training, degrading the model's performance. Conserving ethical considerations about patient data privacy and security is another critical challenge. Handling these challenges is crucial to harnessing FDL for Big Data management to transform the healthcare sector.

This Special Issue will explore the application of Fuzzy Deep Learning in Big Data Management in healthcare. With the explosive growth of healthcare data, effectively managing and analyzing such data has become a significant challenge. Fuzzy Deep Learning offers a new solution to this challenge by building and training deep learning models to process and analyze large-scale, high-dimensional, and complex healthcare data..

Topics of interest include, but are not limited to, the following:

- FDL for handling uncertainties and imprecision for Healthcare Big Data
- Improved Diagnostic Model for Fuzzy Big Data Efficient Decision Support Systems for Clinical Big Data Medical Big Data image analysis using FDL
- Predicting disease progression using FDL-powered time series massive data FDL-empowered data cleaning algorithms for medical Big Data FDL for Big Data Warehouse and Clustering
- Efficient FDL-supported Big Data farmwork
- Synergy of IoT and FDL for real-time Healthcare Big Data FDL-enabled Data Fusion algorithms for complex Big Data set
- FDL empowered Natural Language Processing for the interpretability of medical information
- Data Privacy and Security Algorithm for FDL-powered Big Data Accurate Algorithm for Predicting Patient Risk Prediction.

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Key Dates

Deadline for Submission: 15 Jan, 2025

First Reviews Due: 20 March, 2025

Revised Manuscript Due: 01 May, 2025

Final Decision: 30 June, 2025